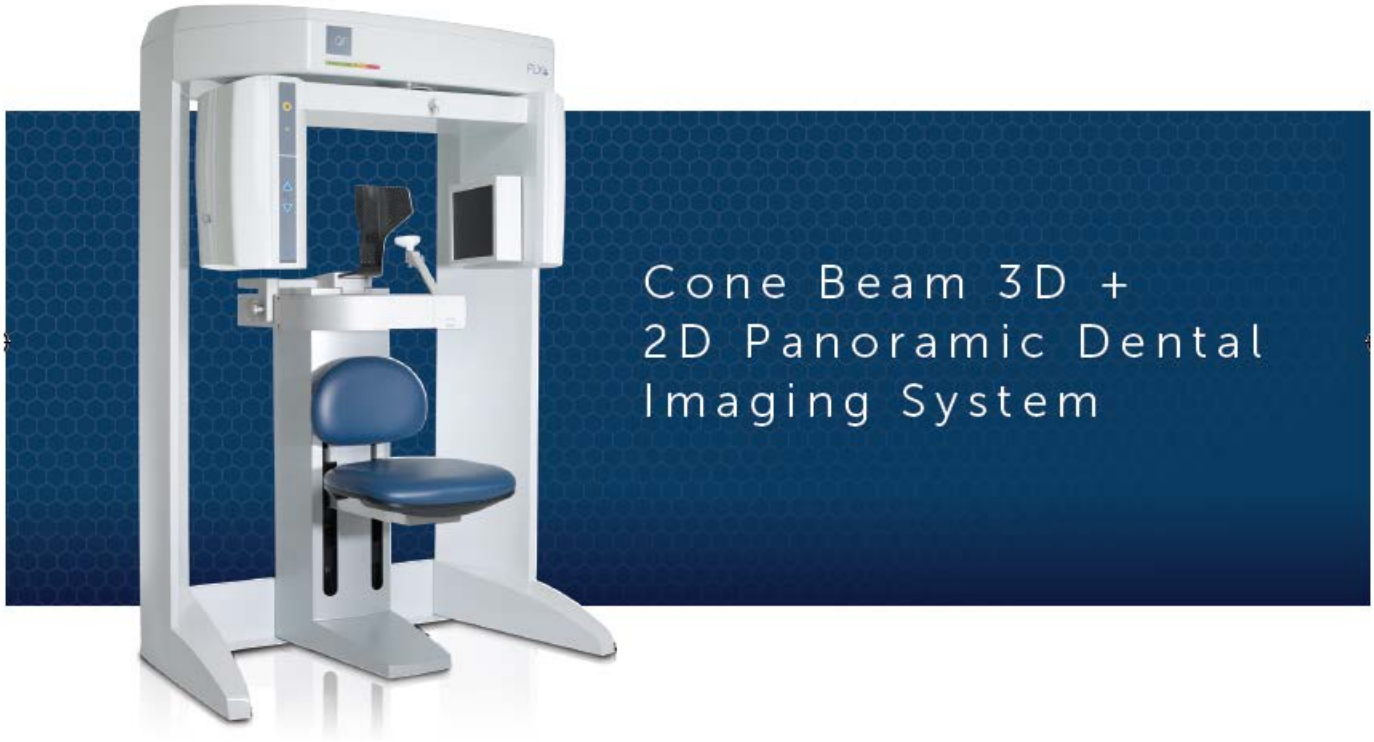
i-CAT®

Service Manual



Cone Beam 3D +
2D Panoramic Dental
Imaging System

FLX

IMPORTANT! . . . X-RAY PROTECTION

X-ray equipment may cause injury if used improperly. The instructions contained in this manual must be read and followed when installing this scanner. The scanner provides a high degree of protection from unnecessary X-radiation. However, no practical design can provide complete protection, nor prevent operators from exposing themselves or others to unnecessary radiation. It is important that you become fully acquainted with applicable government radiation protection regulations. Many provisions of these regulations are based on the recommendations of the National Council on Radiation Protection and Measurements. Recommendations for dental X-ray protection are published in NCRP Report Number 35 available from NCRP Publications, 7910 Woodmont Ave., Suite 800, Bethesda, MD 20814, or at www.ncrp.com. Personal radiation monitoring and protective devices are available. You are urged to use them to protect against unnecessary X-radiation exposure.

TABLE OF CONTENTS

Chapter

1 Corrective Action

Replace External Fuses

Four external fuses are located on the back of the overhead.

WARNING

To avoid electrical shock, remove power from the system before removing fuses. Do not touch the metal parts of the fuse holder until fully removed from the system. Touch the plastic cap only.

1. Press the **OFF** button on the operator control box. The scanner shuts down and the POWER indicators on the operator control box and scanner go OFF.
2. At rear of overhead, switch circuit breaker to off position.
3. Using plastic cap, turn fuse holder counterclockwise and pull out.
4. Replace the fuse in the holder.

1, 2	Door Interlock	0.25A, 250V (fast acting)
3	Warning System	2.5A, 250V (slow blow)
4	X-Ray Power	10A, 250V (slow blow)

5. Align fuse holder in hole, push in and turn clockwise to secure.

Panel Cover

The panel cover on the receptor panel fits very tightly over the panel. If this panel cover is removed and re-installed for any reason, perform the following:

- Geometric Calibration
- Crosshair Laser Adjustment
- Chair Calibration
- Centerline Laser Adjustment

Refer to the *i-CAT FLX Installation Manual* for instructions.

Chapter 2 Illustrated Parts Breakdown

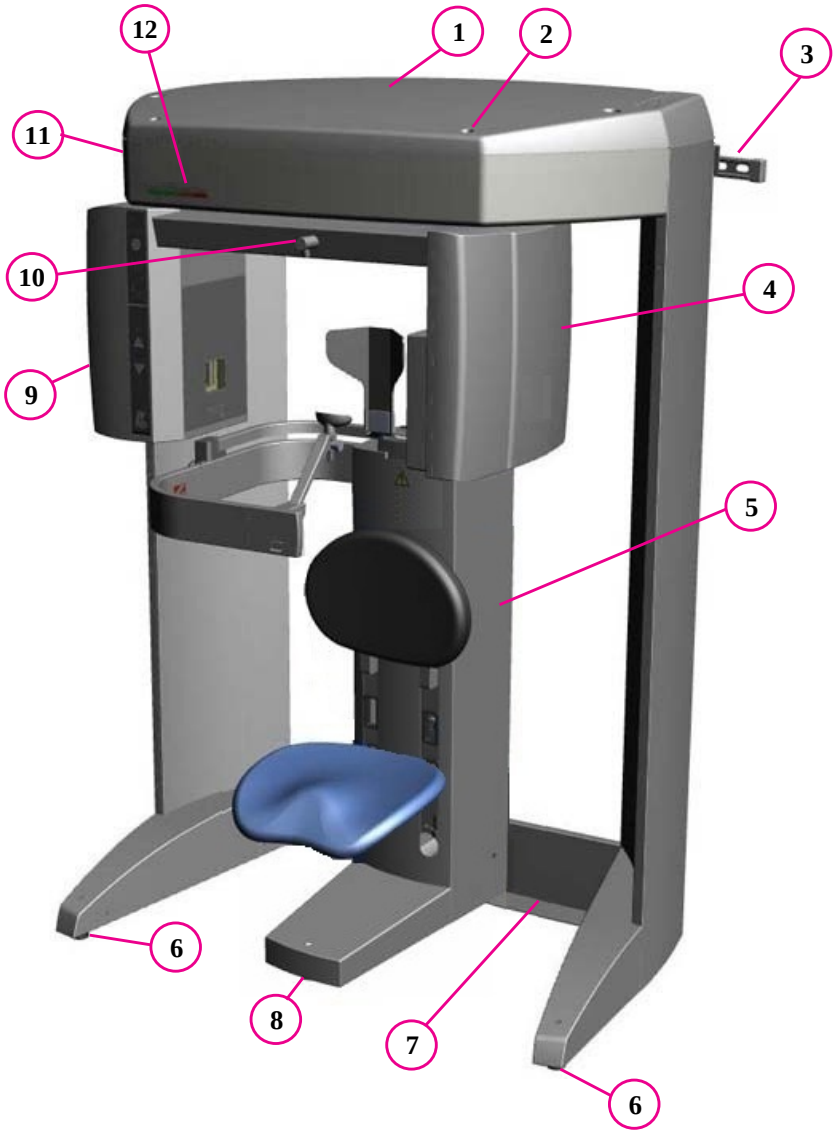
This chapter provides replacement part numbers. Ensure power is removed before servicing the scanner.

WARNING

High voltage is present in the scanner. Remove power from scanner before removing covers or cables. To avoid personal injury from electrical shock, do not operate the system with any covers open or cables removed.

The following assemblies are illustrated.

i-CAT FLX System Assemblies

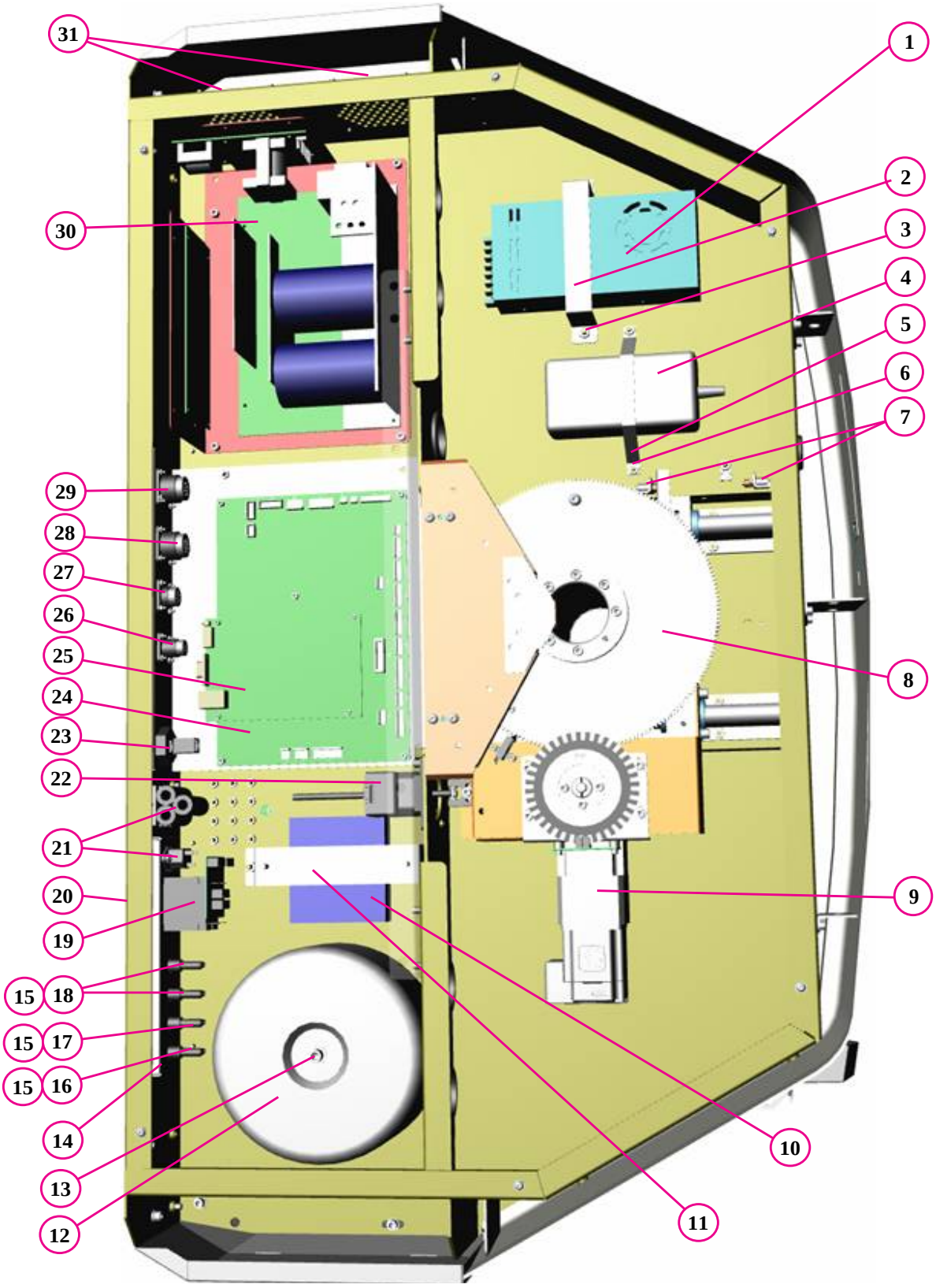


i-CAT FLX Model

i-CAT FLX System Assembly Parts List

Item	Part No.	Description
1	1.006.5157	Upper Cover
2		BHCS #8-32 x 3/8 Long
3	1.007.6265	Wall Stabilizer
4	1.009.9478	Flip Receptor Assembly
5	1.009.9458	Chair Assembly
6	0.830.0200	Leveler - 3/8-16
7	0.830.5669	Lower Plate Weldment
8	0.830.0199	Leveler - 3/8-16 500# Load Cap
9	1.009.9474	X-Ray Source Assembly
10	1.007.4085	Laser Line Assembly
11	1.009.9463	Lower Cover Assembly
12	1.007.4087	Resident Indicator Panel

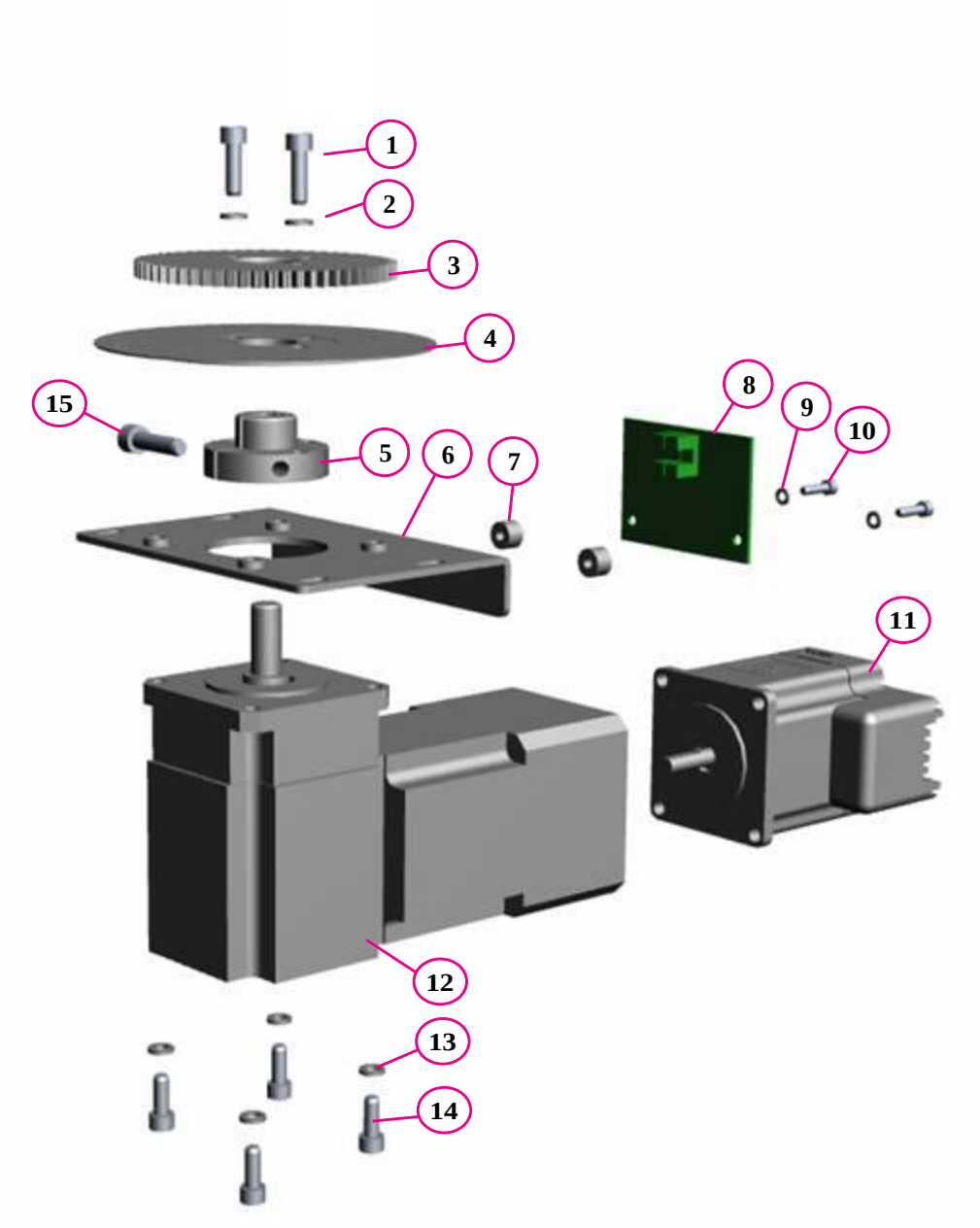
Overhead Assembly



Overhead Assembly Parts List

Item	Part No,	Description
1	1.006.3077	24V Power Supply
2	0.830.0360	Hook and Loop Fastener
3		#10-32 Nut
4	1.006.3078	2520 Varian Power Supply
5	0.830.0360	Hook and Loop Fastener
6		#10-32 Nut
7	1.007.1007	Limit Switches (set)
8	0.830.2548	Spindle Assembly
9	1.006.5842	Rotation Stepper Motor
10	0.830.0457	Network Switch and Power Cable
11	0.830.0360	Hook and Loop Fastener
12	0.830.1997	Toroid Isolation Transformer
13		SHCS 5/16-18 x 1 Long
14	0.010.0953	Power Bracket Assembly
15	1.007.4094	Buss #HTB-84M
16	1.006.3075	10A Fuse Digi-Key #F985-ND
17	1.006.3074	2.5A Fuse Digi-Key #F979-ND
18	1.006.3076	0.25 A Fuse Digi-Key #F939-ND
19	1.005.8617	10A/115VAC Circuit Breaker
20	1.007.4095	Fuse Label (not shown)
21	1.007.6324	Line Choke
22	1.005.8629	Platform Motor
23	1.007.6644	Ethernet Panel Mount Cable
24	1.005.8632	i-CAT System Board
25	1.005.8624	i-CAT Embedded Board
26	1.007.4097	Warning System External Cable Assembly
27	1.007.4098	Door Interlock External Cable Assembly
28	1.007.4099	Control Box External Cable Assembly
29	1.007.4100	Chair External Cable Assembly
30	1.009.9461	Overhead Sub-assembly
31	1.007.4101	Overhead Fan (pair)

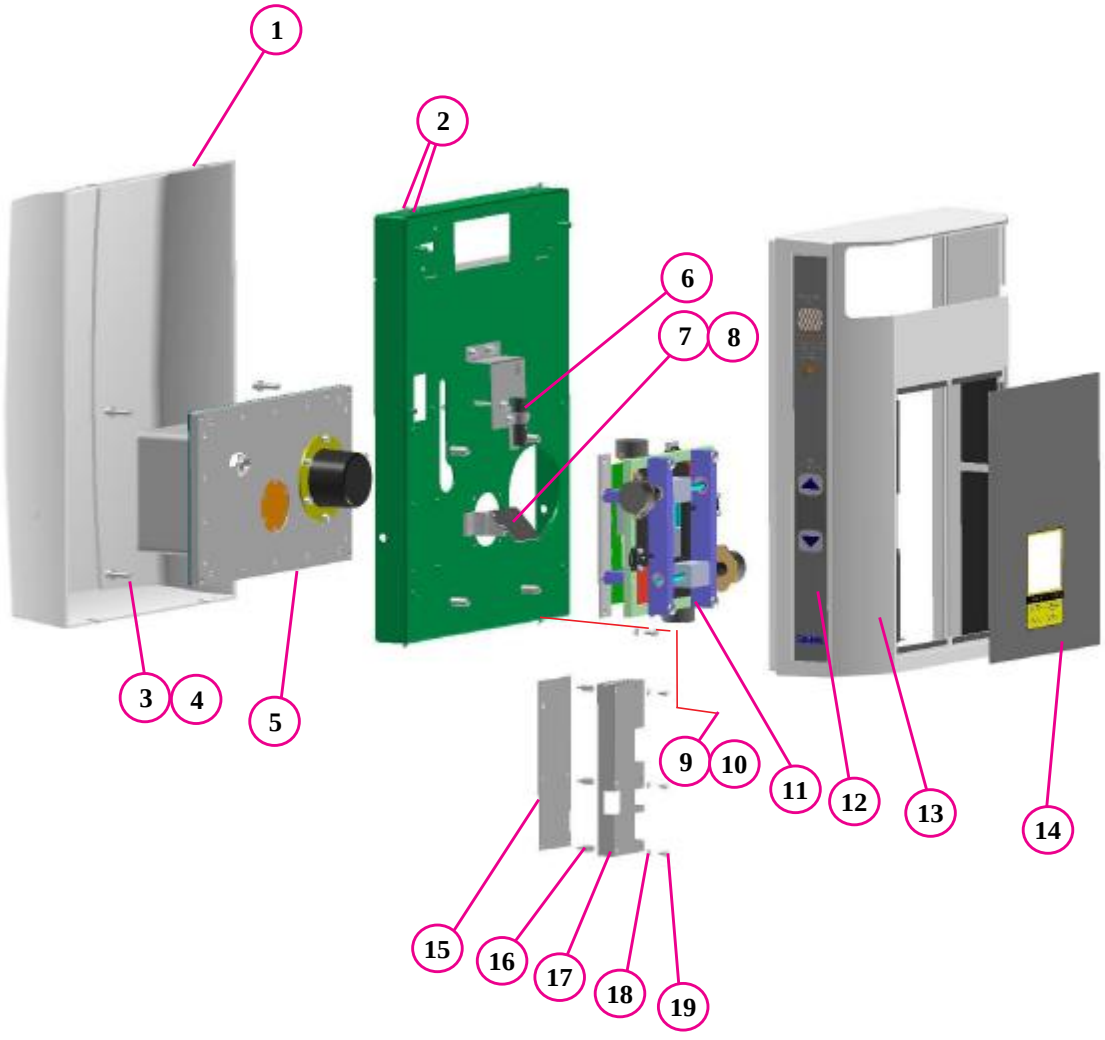
Rotation Drive Assembly



Rotation Drive Assembly Parts List

Item	Part No.	Description
1		SHCS #10-24 x 5/8 Long
2		Split Washer #10
3	1.007.4102	Drive Gear
4	1.006.8180	Gear Encoder Disk
5	1.007.4105	Gear Clamp
6	1.007.4106	Rotation Motor Bracket
7	1.007.4107	Al. Round Spacer
8	1.007.3996	Gear Encoder
9		Split Washer #6
10		SHCS #6-32 x 1/2 Long
11	1.005.8631	Stepper Motor
12	1.007.5725	Thomson Micron #NTR23-025
13		Split Washer #10
14		SHCS #10-24 x 1/2 Long
15		SHCS #10-24 x 3/4 Long

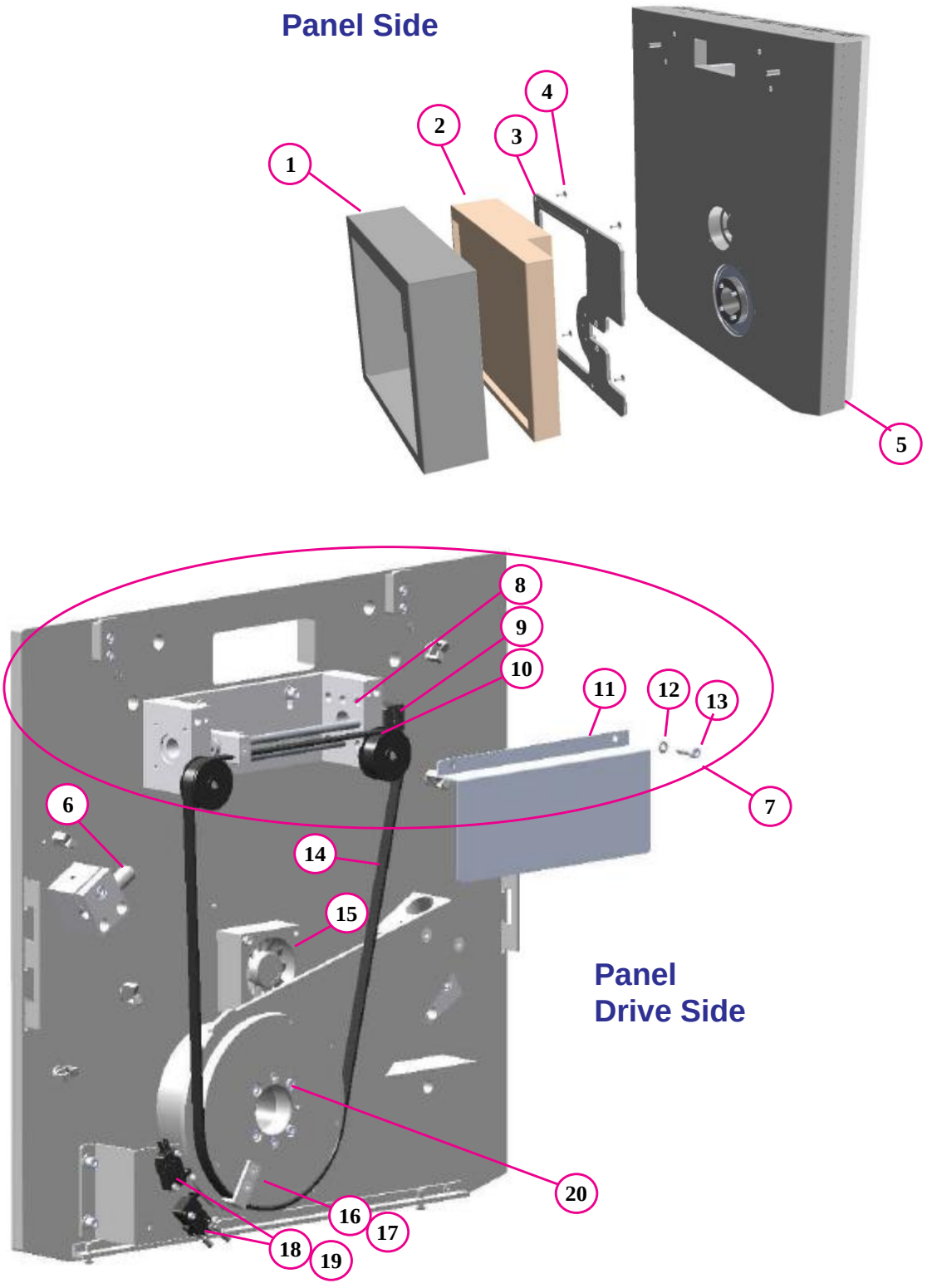
X-Ray Source Assembly



X-Ray Source Assembly Parts List

Item	Part No.	Description
1	1.009.9477	Rear X-Ray Source Cover Assembly
2		BHCS #8-32 x 1/2 Long
3		SHCS 1/4-20 x 1 Long
4		Split Washer 1/4
5	1.005.8633	Tube Head Assembly
6	1.005.8622	Cross Laser Assembly
7	0.830.0492	Cross Laser Mirror
8		BHCS #6-32 x 1/4 Long
9		Split Washer #10
10		SHCS #10-24 x 3/8 Long
11	0.830.0694	Beam Limiter
12	1.007.1840	Patient Align Panel
13	1.009.9475	Front X-Ray Source Cover Assembly
14	1.006.5158	Beam Limiter Panel
15	1.006.3236	Beam Limiter Control PCB
16	1.007.4110	#6-32 x 1/2 Long Standoff McMaster #91
17	1.007.6278	Beam Limiter Board Shield
18		Split Washer #6
19		SHCS #6-32 x 1/4 Long

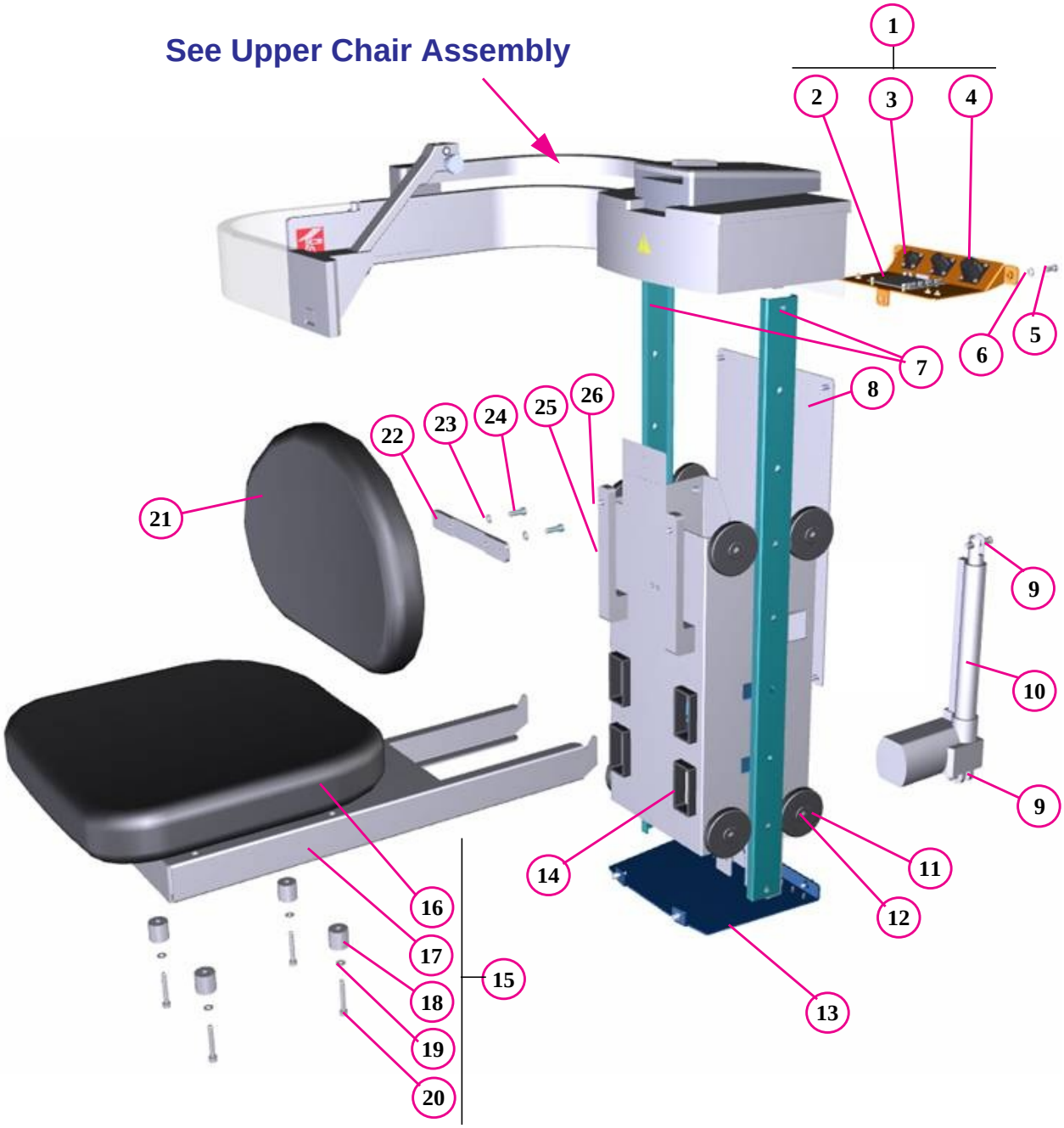
Flip Receptor Panel Assembly



Flip Receptor Panel Assembly Parts List

Item	Part No.	Description
1	1.009.9646	Cover, Receptor Panel
2		2520DX Receptor Panel
3	0.830.0627	Mounting Plate, Receptor 2520D
4		Flat Soc. Hd. M5
5	1.009.9479	Rear Receptor Cover Assy
6	1.007.4114	Stop Screw
7	1.007.4001	Drive Screw Assembly
8		SHCS M3 x 8mm Long
9	1.005.8630	Flip Stepper Motor
10	1.007.4003	Idler
11	1.007.4115	Cable Shield
12		Split Washer #10
13		SHCS #10-32 x 5/8 Long
14	1.007.4116	Belt McMaster #6484K511
15	0.830.0778	Flip Receptor Fan
16	1.007.4005	Belt Key
17		Flat Head Screw #8-32 x 3/8 Long
18	1.007.4007	Flip Receptor Limit Switch Assembly
19		SHCS #4-40 x 5/8 Long
20		SHCS #10-32 x 3 1/2 Long

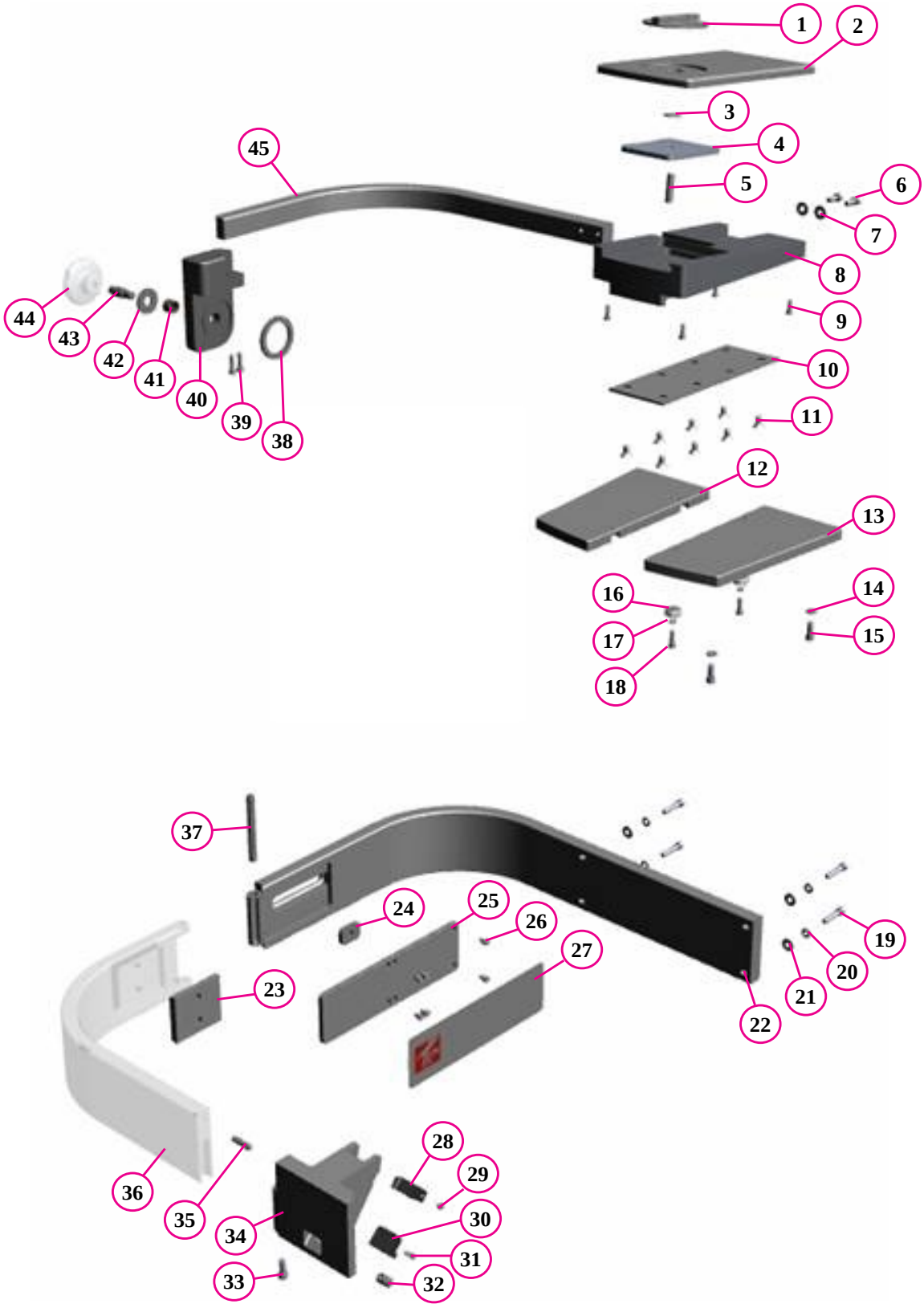
Chair Assembly



Chair Assembly Parts List

Item	Part No.	Description
1	1.007.4118	Chair Receptacle Plate Assembly
2	1.006.6066	Patient Alignment Board
3	1.007.4119	Patient E-Stop External Cable
4	1.007.4121	Chair Junction Cable
5		SHCS 1/4-20 x 5/8 Long
6		1/4 Split Washer
7	1.007.4122	Rail
8	0.830.2024	Slider Plate
9	1.007.4124	McMASTER # 97245A688
10	1.006.5753	MAGNETIC #ECO50-025MM1B0-000
11	1.007.4125	Wheel
12	1.007.4126	Wheel Axle
13	1.007.4127	Actuator Plate
14	1.007.4128	Receptacle Flange
15	1.009.9460	Assembly, Seat Bottom
16	1.009.9462	Pad, Seat Bottom
17	1.007.6283	Seat Frame
18	0.830.0362	Plastic Spacers
19		M6 Split Washer
20		SHCS M6 x 45mm Long PHP ZN
21	1.009.9466	Seat Pad, Back
22	1.007.3920	Back Rest Adapter
23		1/4 Split Washer
24		SHCS M6 x 20mm Long
25	1.007.4132	Seat Back Support
26		SHCS 1/.4-20 x 1/2 Long

Upper Chair Assembly



Upper Chair Assembly Parts List

Item	Part No.	Description
1	1.007.3598	Clamp Knob
2	1.007.3029	Support Plate
3		Nylon Flat Washer 5/16 ID - 3/4 OD
4	1.007.4135	Clamp Plate
5		SS 5/16-18 x 1.25 Long
6		SHCS 1/4 - 20 x 5/8 Long
7		Flat Washer 1/4
8	1.007.4136	Slider Block
9		SHCS #8-32 x 1/2 Long
10	1.007.4137	Roller Plate
11		Flat Head 1/4-20 x 1/2 Long
12	1.007.1675	Left Cap Plate
13	1.007.1676	Right Cap Plate
14		Split Washer 1/4
15		SHCS 1/4-20 x 5/8 Long
16	0.830.1440	Bearing V Guide Dual-Vee #W1
17		Split Washer #10
18		SHCS #10-32 x 5/8 Long
19		SHCS 1/4-20 x 1 1/4 Long
20		Split Washer 1/4
21		Flat Washer 1/4
22	0.830.4997	Hinge Bar
23	1.007.4140	Bunting #BM4071
24	1.007.4010	Tee Nut
25	1.007.4141	Magnet Plate
26		SHCS #10-24 x 1/4 Long
27	1.006.8102	Gate Label
28	1.007.4142	Upper Guide
29		BHCS #6-32 x 1/4 Long
30	1.007.4143	Lower Guide
31		SHCS #6-32 x 1/2 Long
32	1.007.4144	3/8 Spring Plunger McMaster Carr #8499A85
33		SHCS 1/4-20 x 5/8 Long
34	0.830.4999	Slide Block
35		Dowel Pin 1/4 x 1 Long
36	0.830.4998	Gate
37	1.007.4147	Gate Pivot Pin
38	1.007.4152	Glide
39		SHCS #10-32 x 3/4 Long
40	0.830.4993	Clamp Handle
41		Bronze Bushing .375 ID x .625 OD x .50 Long
42	1.007.4154	Clamp Washer
43	1.007.4155	Lock Shaft
44	1.007.4156	J.W. Winko #6TCC3/E
45	0.830.4994	Arm

Chapter

3 Service Account Menu

Log In

Service personnel are assigned specific service account access when logging into SmartScan STUDIO on the i-CAT scanner controller. To log in:

1. Enter your user name and password.
2. Press  to log into service menu.

Option	Purpose
Acquire	Acquire exam images and access Utilities. Refer to *i-CAT FLX Installation Manual* for instructions on performing Calibrations and QA tests.
Configurator	Access user account management, network information, file maintenance, and export dose logbook and activity logs. Refer to *i-CAT FLX Technical Guide.*
Technical Support	Access i-CAT Technical Support website.
Remote Assistance	Access website for remote Helpdesk assistance.
Backup & Restore	Access FBackup for backing up or restoring files on the i-CAT scanner controller. Refer to *Software Backup, Recovery, and Upgrades*.
Explorer	Displays Windows Explorer.
Control Panels	Displays Windows Control Panel.
Upgrade	Initiate a software upgrade (future use).
IEC	Displays command line window for entering IEC commands. Refer to *IEC Command Codes* for information.
Viva	Displays Varian Image Viewing and Acquisition application used with the sensor panel.

Run Utilities

1. Select Acquire from the menu.
2. Press  to access Utilities menu.

Option	Description
PanelCal ShutterCal ChairCal GeoCal QA Line Pair QA Material QA Air Water QA Pan	Refer to *i-CAT FLX Installation Manual*.
Reprocess Exam	Refer to *i-CAT FLX User Manual*.
Favorites Manager	Refer to *i-CAT FLX User Manual*.
Roll-off	Roll-off is used for field of view collimation testing.

Roll-Off

Roll-off is used for field of view collimation testing and checks that the extents of the field of view are visible. It can be run for both Full Beam (landscape) and Half Beam (portrait) orientation.

1. Perform both a PanelCal and a ShutterCal, described earlier in this chapter.
2. Select **Roll-off** and press  .
3. Remove all objects from the field of view.
4. Select desired orientation (Full Beam or Half Beam) and press  .
5. To fine-tune adjust the beam limiter shutter collimation amount, enter roll-off values as desired for top, bottom, left and/or right borders. Each border can be independently adjusted. Positive values shift the collimation inward; negative values shift the collimation outward.
6. Press  to initiate a scout scan. Review scout scan for evidence of beam limiter shutter collimation on all four borders.

   NOTE: For Full Beam, two scout scans are taken in landscape position. For Half Beam, one scout is taken in portrait position.

   - Make note of any test configuration that requires roll-off adjustment greater than 10.00 in either direction (plus or minus).
   - Make note of any test configuration that does not show evidence of beam limiter shutter collimation.

7. When scout scans are complete, press  to continue with additional roll-off testing or  to exit.

Chapter

4 Software Backup and Restore, Recovery, and Upgrades

Backup and Restore

FBackup is a utility for backing up and restoring files on the i-CAT scanner controller. The utility has both a Backup wizard and a Restore wizard that walks you through the process of selecting the files and location for each operation. Refer to the online help within FBackup for more information.

Also, user accounts that have been added by the site need to be manually copied and restored. This data is not stored in the two files above.

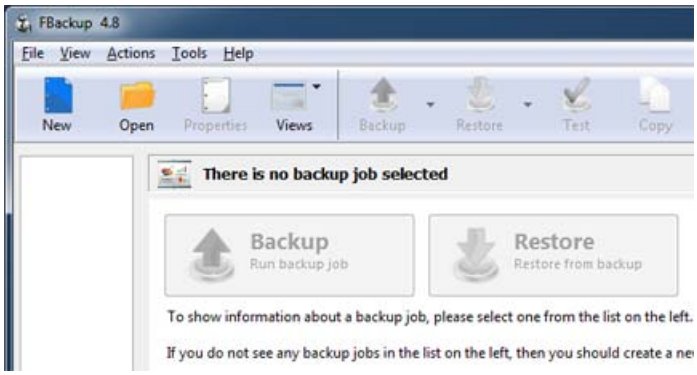
The recommended workflow is to use a USB-connected device (USB Flash Drive or external drive with a USB connection) as the storage media. The following folders contain site-specific files that should be backed up:

- Imagers
- Data

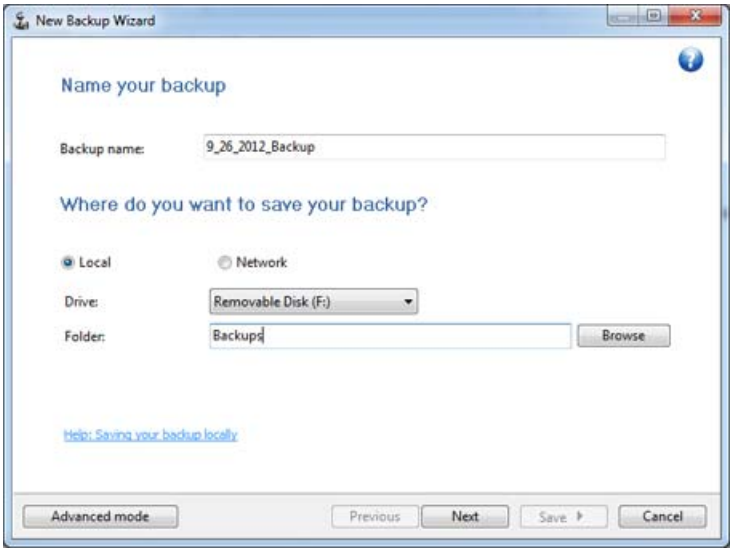
NOTE: If you are using a USB Flash Drive (UFD), be sure it has enough storage space to hold the files being backed up.

Backup Files

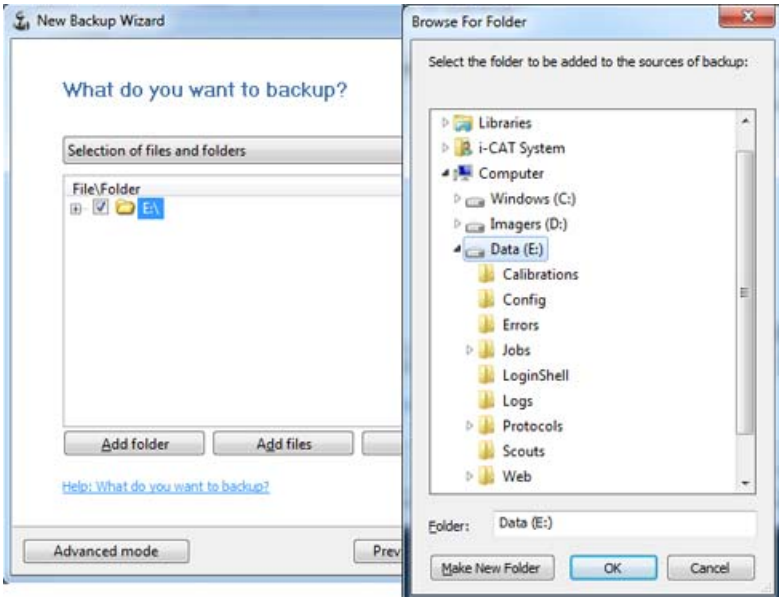
1. Install USB-connected device to a USB port on the scanner controller.
2. Login with Service account and select **Backup & Restore** from menu.
3. Select **New** to create a new backup job.



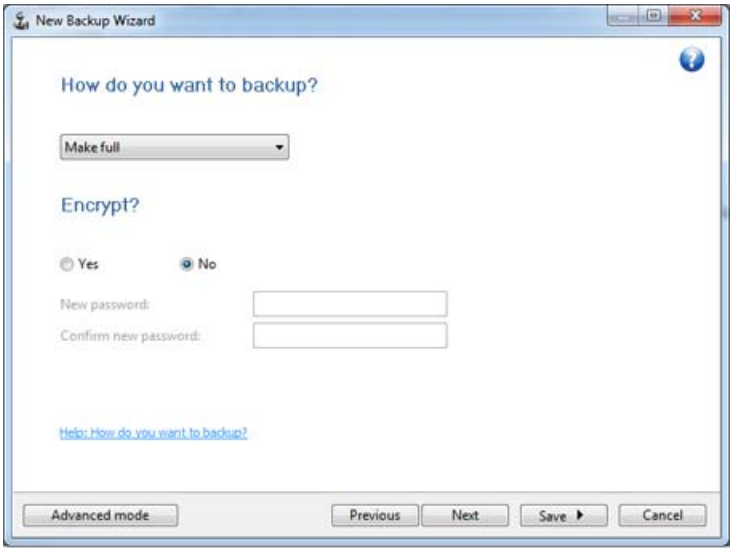
4. On the New Backup Wizard, complete the following:
   a. Enter a name for the backup job.
   b. Select **Local** to save to the USB device.
   c. Select drive location of the USB device.
   d. To save backup files to a specific folder, browse to desired folder location. Otherwise, a folder will be created on the media with the backup job name.
   e. Select **Next**.



5. Select folders to be backup up:
   a. Select **Add Folder**.
   b. On pop-up window, select Computer, the select **Imagers (D:)**. Press **OK**.
   c. Repeat above step and select **Data (E:)**. Press **OK**.
   d. Press **Next**.

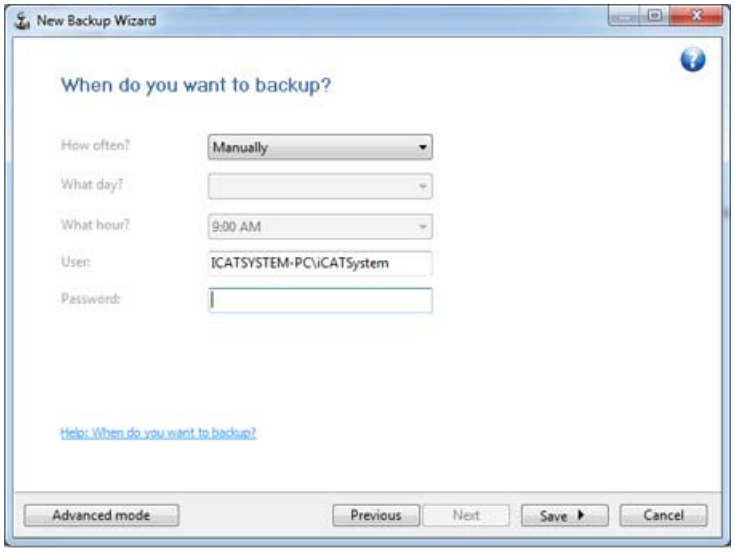


6. Ensure **Make Full** and Encrypt **No** options are selected. Press **Next**.



7. Ensure **Manually** option is selected. Press **Save,** then select **Save and run**. Backup job parameters are saved and job executes. A progress bar is displayed at the bottom of the window.

   NOTE: The duration of the backup operation will vary depending on the amount of data being backed up.



8. When backup job completes, *Last backup status* field will indicate status.

   NOTE: To view a log of the backup operation, select View -> Job Logs -> Last Backup Log. The log may indicate that one file was skipped. This is the System Volume file, which cannot be copied because permission is denied. It is not necessary to backup this file.

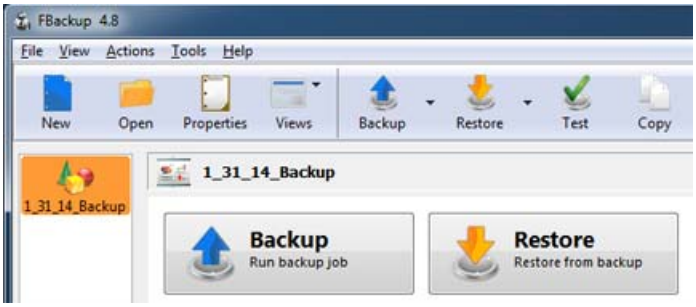
9. Un-install USB-connected device and label media.

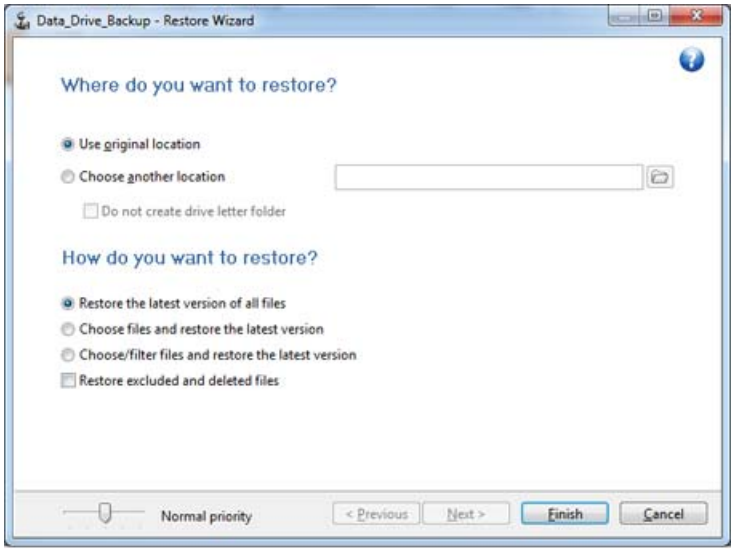
Restore Files

1. Install USB-connected device containing the files to be restored to a USB port on the scanner controller.
2. Select **Backup & Restore** from menu.
3. Select backup job to be restored from left side of window.
4. Press **Restore**.
5. On Restore Wizard, ensure the following defaults are selected:
   - Use original location
   - Restore the latest version of all files
6. Press **Finish**. Restore begins. You may be prompted to confirm overwriting of files.

   NOTE: The duration of the restore operation will vary depending on the amount of data being restored.
7. A progress bar is displayed at the bottom of the window. When complete, select View -> Job Logs -> Last Restore Log view a log of the restore operation.

   NOTE: If any errors are encountered during the restore, a pop-up displays with an option to view the log file.
8. Un-install USB-connected device.





Backup and Restore User Account Data

Currently, the only way to backup user accounts that have been added by the site is to manually copy the account names and then recreate the accounts after the operating environment has been restored. Recreated accounts will have to be assigned default passwords, that can later be changed to a password selected by the user.

Restore Operating Environment

The operating system image on the scanner controller (model 800137) is pre-loaded at the factory. Sites receive a USB Flash Drive (UFD) of this image. Follow the procedures below in case the operating environment must be restored.

Boot the Scanner Controller from the Bootable UFD

1. Insert the bootable UFD into an available USB port on the scanner controller.
2. Boot the scanner controller (power off/power on) to the BIOS setup screen by pressing the **Delete** key at the beginning of the boot sequence, typically when the SmartScan STUDIO splash screen is displayed and beeps are audible. You may want to press **Delete** several time when the splash screen is displayed to ensure entry into the BIOS setup screen.
3. Press the **Right Arrow** key until the **BOOT** options tab is selected, and then press the **Up Arrow** key to select the **Hard Drive BBS Priorities** option.
4. Press the **Enter** key twice to access the hard drive boot options. Use the **Down Arrow** key to select the UFD entry (indicated by the device description of the UFD).
5. Press the **Enter** key to select the UFD.
6. Press the **F4** key to display a save dialog, then select **Yes** and press the **Enter** key to save the change and initiate a reboot. The scanner controller will reboot from the UFD.
7. From this point, continue with one of the following operations:
   - *Install the Operating System Image*
   - *Repartition and Upgrade Scanner Controller Software for Systems with a Single Disk Partition to Version 2.1.0*
   - *Upgrade Scanner Controller Software from 2.0.1 to 2.1.0*
   - *Make a Backup Copy of the Software Package onto a Blank UFD*

Install the Operating System Image

NOTE: The touch screen interface is not active in this application. Attach a mouse or use keyboard commands (tab to move between fields, up and down arrow keys to make selections in a field, space bar or Enter key to enter).

1. Obtain the bootable UFD and follow instructions in *Boot the Scanner Controller from the Bootable UFD*.
2. After the scanner controller has booted from the UFD, the Installation Progress Monitor is displayed, followed by a window with the message: **Verifying packages**. Wait (about five minutes) until the message **Package verification passed** is displayed and options on the window become active. If package verification fails, obtain a new bootable UFD.
3. Select **Install** from the Select Action drop-down menu.
4. Select **Start**. A warning is displayed that the disk will be erased on the PC.

5. Select **Continue**. A message displays stating the disk will be erased.
6. Select **Continue** again. The disk is erased and software installation begins.
7. After the software is written to the internal hard drive, remove the UFD from the USB port.

   NOTE: Failure to remove the UFD will cause the scanner controller to boot from it again. In this case, remove the UFD and turn the scanner controller off, then on.
8. Select **Quit**. The scanner controller will reboot and start first-time boot processing (5-10 minutes). It will reboot again, perform checks and configuration, then display the Login screen.
9. Log in using the Service account and select **Explorer** from the menu. Check to see if Imagers is empty:
   a. Navigate to **Imagers** (typically D drive). Check for a folder named for the serial number of the detector panel (for example: E259-04B). If this file exists, installation is complete. Otherwise, continue with step b.
   b. Obtain the Imagers DVD for the panel. Obtain an external DVD drive or copy the DVD contents to a UFD.
   c. Navigate to the Imagers content on the DVD or UFD.
   d. Start **Setup.exe** and follow instructions.

Software Upgrades

This section describes the following upgrade scenarios:

- *Repartition and Upgrade Scanner Controller Software for Systems with a Single Disk Partition to Version 2.1.0*
- *Upgrade Scanner Controller Software from 2.0.1 to 2.1.0*
- *Upgrade Clinical Software*

Upgrades of the scanner controller software require that site-customized data (user accounts and customized favorites) be recorded prior to the upgrade, so that they can be restored after the upgrade.

CAUTION

It is REQUIRED that the most current versions of the clinical software are installed after the scanner controller is upgraded.

Clinical software at the site must be upgraded to the most current versions after the scanner controller software is upgraded. Access Control Panel at each site workstation to view the current clinical software versions loaded. The most current clinical software versions are:

- SmartScan STUDIO Integration Services 1.1.0
- SmartScan STUDIO Manager 2.1.0
- DEXIS SmartScan STUDIO Integration Services 1.1.0

All servers and client workstations must be running one of the following operating systems. The upgrade software performs a check, and will not continue if the computer is not running one of these operating systems.

- Windows® 7 Professional, Ultimate, and Enterprise (64-bit) SP1
- Windows® 8 Pro and Enterprise (64-bit)
- Windows® Server 2008 R2 SP1 (make sure .NET 3.5.1 is enabled before loading software)

NOTE: The DEXIS Integration Services Client supports the following operating systems:

- Windows® 7 Professional, Ultimate, and Enterprise (64-bit) SP1
- Windows® 7 Professional, Ultimate, and Enterprise (32-bit) SP1
- Windows® Server 2008 R2 SP1

Prior to beginning the upgrade, ensure that the system is operational and all network connections exist and are valid. Previous settings and locations are retained, so it is important to know that the system is fully operational before beginning the upgrade.

Manually Copy Site-Customized Data

Some user data will be overwritten during a software upgrade. Before starting an upgrade, write down the following information so that it can be recreated after the upgrade:

1. User Account Data - manually copy the account names so the accounts can be recreated after the upgrade is complete. Recreated accounts will have to be assigned default passwords, that can later be changed to a password selected by the user.
   a. Start **Configurator** and go to Accounts tab.
   b. Write down all information in the User Name, Display Name, and Description.
2. i-CAT Configurator Network Settings (for Repartition and Upgrade from 2.0.0 only) - manually copy addresses displayed on the i-CAT Configurator Network tab. Select **Configurator**, then **Network**.
3. Customized Favorites - manually copy the parameters of the customized protocol favorites so the favorites can be recreated after the upgrade is complete.
   a. Start **Acquire**.
   b. Navigate to the favorites display and identify customized favorites (any protocol that is not a default). Default favorites are listed in the *i-CAT FLX User Manual*. Write down the following information so that the customized protocols can be recreated when the upgrade is complete: protocol name, volume size, voxel size, scan time, exposure time, kVp, mA, and if DAP is for Scan, Scout, or Dryrun.

Repartition and Upgrade Scanner Controller Software for Systems with a Single Disk Partition to Version 2.1.0

This upgrade procedure is only required to be used on scanner controllers originally shipped with software version 2.0.0 (about the first 60 units).

NOTE:

- Some scanner controllers may have been upgraded to 2.0.1 in the field. It is required that this procedure be performed to repartition the disk and upgrade the software.

- Scanner controllers that were shipped with version 2.0.1 software have the proper disk partitions. Follow *Upgrade Scanner Controller Software from 2.0.1 to 2.1.0* to upgrade these systems.

Scanner controllers that were shipped with 2.0.0 will have data that is needed by the site. Upgrading software on these scanner controllers requires repartitioning the disk drive, which deletes all data. The site must provide external storage so that the repartitioning process can backup and restore user data. Since this data might be large, and USB flash drives are usually smaller and slower than external disk drives, it is recommended that an external disk drive be used for this data storage. Alternatively, network storage can be used by providing a UNC path to the data storage location.

NOTE: The touch screen interface is not active in this application. Attach a mouse or use keyboard commands (tab to move between fields, up and down arrow keys to make selections in a field, space bar or Enter key to enter).

1. Ensure site-customized data has been recorded (*Manually Copy Site-Customized Data*).
2. Obtain the bootable UFD containing the upgrade software.
3. Follow instructions in *Boot the Scanner Controller from the Bootable UFD*.
4. After the scanner controller has booted from the UFD, the Installation Progress Monitor is displayed, followed by a window with the message: **Verifying packages**. Wait (about five minutes) until the message **Package verification passed** is displayed and options on the window become active. If package verification fails, obtain a new bootable UFD.
5. Install an external storage device on the scanner controller, or identify a network storage location (UNC path) where user data can be backed up.
6. Select **Repartition** from the Select Action drop-down menu.
7. Select a Backup Path:

   NOTE: The upgrade software will automatically create a folder for the backup files.

   To backup to an external media drive:

   a. Click ... . The Backup Path dialog is displayed.
   b. Click **My Computer** to show drive options.
   c. Select the external drive that was installed from the list, and click **Choose** on the dialog.

   To backup to a network location:

   a. Enter a UNC path for the backup location, for example: **\\<server name>\<folder>**
   b. Verify that the path is valid by clicking ... . The Backup Path dialog displays showing the selected location.
   c. Click **Choose** on the dialog.
8. Click **Start**. The backup location is verified and a warning is displayed that the disk will be erased.
9. Select **Continue** when prompted. The backup is initiated. First, the imagers data is backed up, followed by user data, which may take several hours depending on the amount of user data at the site. Progress of the backup is logged in the window.
10. After the internal disk is erased and repartitioned, the user data is restored. This may take several hours, depending on the amount of user data at the site.

11. When prompted, remove the UFD from the USB port.
12. After the UFD is removed, select **Quit**. The Installation Progress Monitor is displayed briefly, then the scanner controller will reboot and start first-time boot processing (5-10 minutes). It will reboot again, and perform checks and configuration, then display the Login screen.
13. Log in using the Service Account and perform the following:
    - Check the time zone. Select **Control Panels**, then **Change time zone** and reset as needed.
    - Check LAN Connection parameters. Select **Configurator**, then **Network**. Change addresses as needed to match what was manually recorded.

    NOTE: The Imagers folder, Scanner Model and other specific information have been retained.

    - Re-create site-customized data, as needed. See *i-CAT FLX Technical Guide* for instructions on creating user accounts. See *i-CAT FLX User Manual* for instructions on creating customized favorites.
14. Perform upgrades to clinical software installed at the site. See *Upgrade Clinical Software*.

Upgrade Scanner Controller Software from 2.0.1 to 2.1.0

This procedure is primarily used to upgrade the software on an existing scanner controller in the field to a newer version.

Occasionally, this procedure may need to be used to recover from a problem with the operating system disk partition if the other data partitions of the disk are still intact, including the case where the scanner controller will not boot.

NOTE: The touch screen interface is not active in this application. Attach a mouse or use keyboard commands (tab to move between fields, up and down arrow keys to make selections in a field, space bar or Enter key to enter).

1. Ensure site-customized data has been recorded (*Manually Copy Site-Customized Data*).
2. Insert the bootable UFD into an available USB port on the scanner controller.
3. Follow instructions in *Boot the Scanner Controller from the Bootable UFD*.
4. After the scanner controller has booted from the UFD, the Installation Progress Monitor is displayed, followed by a window with the message: **Verifying packages**. Wait (about five minutes) until the message **Package verification passed** is displayed and options on the window become active. If package verification fails, obtain a new bootable UFD.
5. Select **Upgrade** from the Select Action drop-down menu.
6. Select **Start**. A warning is displayed that the inactive partition on the PC will be erased.
7. Select **Continue** when prompted. The upgrade begins.
8. When prompted, remove the UFD from the USB port.
9. Select **Quit**. The scanner controller will reboot and start first-time boot processing (5-10 minutes). It will reboot again, and perform checks and configuration, then display the Login screen. No manual system configuration is required since the previous configuration has been maintained.
10. Log in using the Service Account and re-create site-customized data, as needed.

- See *i-CAT FLX Technical Guide* for instructions on creating user accounts.
- See *i-CAT FLX User Manual* for instructions on creating customized favorites.

NOTE: Clinical software MUST be upgraded after the scanner controller is upgraded.

11. Perform upgrades to clinical software installed at the site. See *Upgrade Clinical Software*.

Upgrade Clinical Software

Follow the procedures below to upgrade clinical software that is required at the site. Clinical software should be upgraded in the following order:

- SmartScan STUDIO Integration Services (all sites)
- DEXIS SmartScan STUDIO Integration Services for Server (DEXIS-FLX sites only)
- DEXIS SmartScan STUDIO Integration Services for Client (DEXIS-FLX sites only)
- SmartScan STUDIO Manager (all sites)

Upgrade SmartScan STUDIO Integration Services

1. At server, insert DVD in drive.
2. On AutoPlay pop-up, select **Run setup.vbs**. If AutoPlay pop-up does not display, navigate to the DVD drive, right-click and select **Open AutoPlay**.
3. On the SmartScan STUDIO Installer pop-up, select **Yes** to install the SSS Integration Service.
4. On Welcome screen, click **Next**.
5. On Configuration screen, previous settings will be retained. Click **Next**.
6. On Select Installation Folder screen, previous location will be retained. Click **Next**.
7. On Confirm Installation screen, click **Next**. Installation starts and a progress bar is displayed.
8. When installation completes, click **Close** on the Installation Complete screen.
9. On the SmartScan STUDIO Installer pop-up, select **Yes** to install the FLX Patient Data Utility.
10. On the FLX Patient Data Utility window, click **Next**.
11. On the Ready to Install window, click **Install**. Installation starts and a progress bar is displayed.
12. When Complete window is displayed, click **Finish**.
13. On the SmartScan STUDIO Installer pop-up, select **Yes** to install the FLX Data Utility.
14. On the FLX Data Utility window, click **Next**.
15. On the Ready to Install window, click **Install**. Installation starts and a progress bar is displayed.
16. When Complete window is displayed, click **Finish**.
17. Remove DVD.

Upgrade DEXIS SmartScan STUDIO Integration Services for Server

1. Ensure DEXIS Imaging Suite (version 10) and SmartScan STUDIO Integration Services are installed. DEXIS SmartScan STUDIO Integration Services will not load until both are installed.
2. At server, insert DVD in drive.
3. On AutoPlay pop-up, select **Run dexmenu.exe**. If AutoPlay pop-up does not display, navigate to the DVD drive, right-click and select **Open AutoPlay**.
4. Select **Server Installation**.
5. Select **Install SmartScanStudio Server Plugin**.
6. On Welcome screen, click **Next**.
7. On DEXIS configuration screen, previous location will be retained. Click **Next**.
8. On Confirm Installation screen, click **Next**. Installation starts and a progress bar is displayed.
9. When installation completes, click **Close** on the Installation Complete screen.
10. On Server Installation screen, click **Back to Main Menu**, then click **Exit** to close window. Remove DVD.

Upgrade DEXIS SmartScan STUDIO Integration Services for Client

Upgrade all workstations that currently use DEXIS with FLX.

1. Insert DVD in drive.
2. On AutoPlay pop-up, select **Run dexmenu.exe**. If AutoPlay pop-up does not display, navigate to the DVD drive, right-click and select **Open AutoPlay**.
3. Select **Client Installation**.
4. Select **Install DEXIS i-CAT FLX**.
5. If the required Visual C++ packages are **not** installed, the Install Shield screen is displayed. Click **Install** to load each package. The computer will automatically reboot during the installation.
6. On DEXIS i-CAT FLX Configuration screen, click **Next**.
7. On Configuration screen in the Acquisition Device Web Address field, previous settings will be retained. Click **Next**.
8. On Ready to Install screen, click **Install**. Installation starts and a progress bar is displayed.
9. When installation completes, click **Finish**.
10. On Client Installation screen, click **Back to Main Menu**, then click **Exit** to close installation window.
11. Remove DVD.

Upgrade SmartScan STUDIO Manager

1. Insert DVD in drive.
2. On AutoPlay pop-up, select **Run SSSManagerSetup.exe**. If AutoPlay pop-up does not display, select **Open folder to view files**. Open the SmartScanSTUDIO_Manager folder, then double-click **SSSManagerSetup**.
3. On Welcome screen, click **Next**.
4. On Select Installation Folder screen, previous location will be retained. Click **Next**.
5. On Confirm Installation screen, click **Next**. Installation starts and a progress bar is displayed.
6. When installation completes, click **Close** on the Installation Complete screen and remove DVD.
7. Start SmartScan STUDIO Manager.
8. Check the status indicators at the top of the window. All indicators should display **OK**. If not, go to next section for more information.

SmartScan STUDIO Manager Status Indicators

SmartScan STUDIO Manager displays three status indicators in the top, right-hand corner of the display. Move the mouse over the indicator to display more detail about the status condition.

Scanner - indicates status of the connectivity between the workstation running SmartScan STUDIO Manager and the i-CAT FLX scanner controller.

Database -

- The first indicator shows status of the communication between the workstation running SmartScan STUDIO Manager and the SmartScan STUDIO Integration Services web service.
- The second indicator shows status of the communication between the workstation running SmartScan STUDIO Manager and the Image Root folder.

If a status check fails, the status indicator changes to a red X.

Refer to *i-CAT FLX Installation Manual* for more information on troubleshooting failed status indicator conditions. Contact Technical Support if problem is not corrected or the error persists.

Make a Backup Copy of the Software Package onto a Blank UFD

NOTE: The touch screen interface is not active in this application. Attach a mouse or use keyboard commands (tab to move between fields, up and down arrow keys to make selections in a field, space bar or Enter key to enter).

1. Insert the bootable UFD into an available USB port on the scanner controller.
2. Follow instructions in *Boot the Scanner Controller from the Bootable UFD*.

3. After the scanner controller has booted from the UFD, the Installation Progress Monitor is displayed, followed by a window with the message: **Verifying packages**. Wait (about five minutes) until the message **Package verification passed** is displayed and options on the window become active. If package verification fails, obtain a new bootable UFD.
4. Select **MakeUFD** from the Select Action drop-down menu.
5. Insert a blank UFD into an available USB port.
6. Select the correct drive letter for the blank UFD from the UFD drop-down menu.
7. Select **Start**. You are prompted to ensure a blank UFD is attached.
8. Select **Continue**. A warning is displayed that all contents will be lost on the UFD.
9. Select **Continue**. A message is displayed that the UFD drive will be erased, and the i-CAT software will be copied.
10. Select **Continue**. The UFD is erased, then the copy operation begins.

    NOTE: The copy operation takes approximately 30 minutes, depending on the size of the upgrade.
11. When the copy is complete, a success message is displayed. Select **Continue**.
12. Remove both UFDs from the scanner controller.
13. Select **Quit**. Installation Progress Monitor is displayed briefly, followed by a message stating no upgrade was performed.
14. Select  . The scanner controller will reboot to the Login screen.

SmartScan STUDIO Manager Settings Window

In addition to providing options for configuring SmartScan STUDIO Manager (described in *i-CAT FLX Installation Manual*), the Settings window also contains the product version and a rescan option.

In SmartScan STUDIO Manager, select  to access the Settings window.

Product Version

Starting with version 2.1.0, the current installed version number of SmartScan STUDIO Manager can be found on the Settings window.

Rescan

The Rescan option rebuilds the patient exam list database. Use this option if it is suspected that the exam list is corrupted. Depending on the size of the database, this can be a time-consuming operation.

Chapter 5 IEC Command Codes

Home Commands

HB Home Beam Limiter
Homes all four shutters; right, left, top and bottom. At the completion of this command the shutters are all open and at a position of zero.
Upon completion of the HB command it is recommended to move all four shutters to a position of 10 steps. This avoids a potential lockup issue on version 4 of the Beam Limiter assembly once powered off.

HP Home Platform
Homes the platform axis to the rear of the gantry and sets the position to 1500.

HFR Home Rotation Fast
Homes the rotation drive from any location such that the Tube-Head and Beam Limiter assembly are located perpendicular to patients' right when seated. This position is then set to be 100000 in stepper motor space. Subsequent MR 100000 commands will move back to this position.

HSR Home Rotation Short
Performs a quick check within approximately 1 degree of the current location for home. If home is not located, the rotation proceeds to perform an HFR. If the rotation is already home, this command will complete much more quickly.

Movement Commands

MB Move Beam Limiter right left top bottom shutter
Command syntax: **MB** *right left top bottom (*Example: MB 700 700 3000 1500)
Right, Left and Bottom shutters: 0 to 2900
Top shutter: 0 to 3300

MP Move Platform
Command syntax: **MP** *Target Speed (*Example: MP 1500 1500)
Target: 1500 to 100000
Speed: 1000 to 54000

MPM Move Platform in mm
Command syntax: **MPM** *Target Speed (*Example: MPM 20 1500)
Target: 0 to 90 mm (home position is zero-absolute)
Speed: 1000 to 54000

MPP Move Panel Position
Command syntax: **MPP** *Position Type*
*(*Example: MPP 1 0 (Half-Beam))
Position: 0 = Full-Beam (Landscape), 1 = Half-Beam (Portrait)
Type: 0 = Platinum, 1 = Nano

MR Move Rotation
Command syntax: **MR** *Distance Speed (*Example: MR 35000 1000)
Distance: 35000 to 733333
Speed: 1000 to 65000

MRD Move Rotation in Degrees
Command syntax: **MRD** *Target Speed (*Example: MRD 180 1000)
Target: -40 to 430 degrees
(home position is equal to zero degrees - absolute)
Speed: 1000 to 65000

Read Commands

RB Read Beam Limiter
Returns a four digit position of each shutter (right, left, top, bottom) in stepper motor positions in the following format.
Return Value = **OK r:xxxx l:xxxx t:xxxx b:xxxx**

RD Read Door Status
0 = Closed and 1 = Open

RE The Read Exception register command returns a 13-bit integer of packed bits indicating which exceptions are set.
Results returned in format: **OK xxxx**
The table below shows the values for the occurrence of each exception as a single occurrence. Most often more than one exception occurs at a time such as all three “not home/initialized” exceptions. In the case of the three “not home/initialized” exceptions, occurring at the same time the return value would be **448**. These exceptions are unique in that they occur at any time when their respective motors are not in the home position; which occurs practically any time the machine is in use. For example if a stall occurs it will do so because the rotation is moving with the platform and shutters moved into position for a patient scan. Therefore, the stall exception typically returns an exception value of **450** instead of the signature value of **2**.

Bit	Binary Value	Decimal Value	Description
N/A	0b 0000 0000 0000 0000	0	No Exceptions
1	0b 0000 0000 0000 000**1**	1	Emergency Stop activated
2	0b 0000 0000 0000 00**1**0	2	Stall Detected
3	0b 0000 0000 0000 0**1**00	4	X-ray Tube Short
4	0b 0000 0000 0000 **1**000	8	X-ray watchdog Time-out
5	0b 0000 0000 000**1** 0000	16	Linux watchdog error
6	0b 0000 0000 00**1**0 0000	32	X-ray Fault from the X-ray controller
7	0b 0000 0000 0**1**00 0000	64	Platform needs to be homed
8	0b 0000 0000 **1**000 0000	128	Rotation needs to be homed
9	0b 0000 000**1** 0000 0000	256	Beam Limiter Not Initialized
10	0b 0000 00**1**0 0000 0000	512	Machine is turned off
11	0b 0000 0**1**00 0000 0000	1024	Door was opened during an X-ray exposure
12	0b 0000 **1**000 0000 0000	2048	Ethernet cable was disconnected during an exposure
13	0b 000**1** 0000 0000 0000	4096	Panel Position error – both limits reading high or low

RI

The Read Input register command returns a 23-bit integer of packed bits indicating which inputs are set.
Results returned in format: **OK xxxx**
The table below documents the values for the occurrence of each input as a single occurrence. More than one may be set at any given time.

Bit	Binary Value	Decimal Value	Description
N/A	0b 0000 0000 0000 0000 0000 0000	0	No Inputs
1	0b 0000 0000 0000 0000 0000 000**1**	1	Emergency Stop activated
2	0b 0000 0000 0000 0000 0000 00**1**0	2	Machine On Switch
3	0b 0000 0000 0000 0000 0000 0**1**00	4	Machine Off Switch
4	0b 0000 0000 0000 0000 0000 **1**000	8	Scan Enable button status
5	0b 0000 0000 0000 0000 000**1** 0000	16	X-ray controller error
6	0b 0000 0000 0000 0000 00**1**0 0000	32	Encoder direction
7	0b 0000 0000 0000 0000 0**1**00 0000	64	Rotation optical switch status
8	0b 0000 0000 0000 0000 **1**000 0000	128	Rotation limit switch
9	0b 0000 0000 0000 000**1** 0000 0000	256	Rotation Start of travel status
10	0b 0000 0000 0000 00**1**0 0000 0000	512	Rotation End of travel status
11	0b 0000 0000 0000 0**1**00 0000 0000	1024	Platform Start of travel status
12	0b 0000 0000 0000 **1**000 0000 0000	2048	Platform End of travel status
13	0b 0000 0000 000**1** 0000 0000 0000	4096	Door signal
14	0b 0000 0000 00**1**0 0000 0000 0000	8192	Panel horizontal (Landscape / Full-Beam)
15	0b 0000 0000 0**1**00 0000 0000 0000	16384	Panel vertical (Portrait / Half-Beam)
16	0b 0000 0000 **1**000 0000 0000 0000	32768	Machine power status
17	0b 0000 000**1** 0000 0000 0000 0000	65536	Right shutter limit switch
18	0b 0000 00**1**0 0000 0000 0000 0000	131072	Left shutter limit switch
19	0b 0000 0**1**00 0000 0000 0000 0000	262144	Top shutter limit switch
20	0b 0000 **1**000 0000 0000 0000 0000	524288	Bottom shutter limit switch
21	0b 000**1** 0000 0000 0000 0000 0000	1048576	Panel flip motion, moving signal
22	0b 00**1**0 0000 0000 0000 0000 0000	2097152	Rotation motion, moving signal
23	0b 0**1**00 0000 0000 0000 0000 0000	4194304	Platform motion, moving signal

RMS

Read Usage Monitors command returns a quantity of time (usage) for the requested component.
Results returned in format: **OK xxxxdxxhxxmxxs** containing the days, hours, minutes and seconds the component has been in use.
Command syntax: **RMS** *n*

0 Beam Limiter Motors

1 Embedded Board

2 Panel

3 Platform Motor

4 24V Power Supply

5 Rotation Motor

6 X-ray

7 Flipper Motor

RP Read Platform position = Reads the platforms stepper motor position.
Results returned in format: **OK xxxxx**
The home position is the back of the gantry with a position of 1500. Front on the Platinum is ~70,000 and on the Nano it is ~79,000. Each millimeter of distance will move the motor 1,008 steps.

RPP Read Panel Position - Reads the panel position
Results returned in format: **OK** *n*

- **0** Error (Both limit switches are open)
- **1** Half-Beam / Portrait mode
- **2** Full-Beam / Landscape mode
- **3** Error

RR Read Rotation
Reads the rotation position in stepper motor space.
Results returned in format: **OK xxxxxx**
One degree of distance is approximately ~1481.50 steps in stepper motor space. Exceptions do apply, namely when moving to negative target degree locations. The full range of motion in motor space is 35000-733333 or in degrees -40 through 430.

RX Read X-ray Setup - reads the X-ray Setup register based on the requested KV range setting.
Command syntax: **RX** *n*
0 = 120 KV Range (default) **1** = 90 KV Range
Results returned in format:
OK kV mA TicksPerFrame XrayOn XrayOff PanelRead PulseMode

Set Commands

SP Sets platform position - Sets the counts of the platform.
Command syntax: **SP** *n*
n = 0 to 65000
The “HP” (home platform) command moves the platform to the rear of the gantry and then sets the position to 1500. The position once moved to the rear could be “set” to 0 using this command. In general, this command is used internally by the embedded firmware.

SR Sets rotation position - Sets the counts of the rotation.
Command syntax: **SR** *n*
n = 35,000 to 733333
The “HFR” (home fast rotation) command moves the rotation to the limit switch and moves positive a constant distance. This location is then set to 100,000. This position once moved to could be “set” to 50,000 using this command. In general, this command is used internally by the embedded firmware.

SX Set X-ray
Command syntax:
SX *kV mA TicksPerFrame XRayOn XRayOff PanelRead PulseMode TubeRange*
kV: 80 to 126 in increments of 2 only
mA: 0 = 3mA, 1 = 5mA, 2 = 7mA
Ticks Per Frame: 50,000,000 to 833,333
50 MHz/Ticks per frame (1-60 frames/sec). Number of 50Mhz clock cycles per frame. Therefore, frame time equals Ticks Per Frame * 20(ns).

X-ray On: Typically equals 1. 0 to (Ticks per frame - 1)
X-ray Off: Greater than X-ray On and less than (Ticks per frame - 1)
Set as needed for desired length. 50,000 = 1 (ms)
Panel Readout: 0 to (Ticks per frame - 1). Typically set the same as X-ray Off, except for continuous X-ray mode.
Pulse Mode: 0 or 1. If not entered, defaults to 0.
0 = 200 microsecond pulse for panel blanking and valid frame.
1 = either a 5msec pulse for valid frame or 3msec for panel blanking
Tube Range: If not entered, defaults to zero.
0 = 120 KV tube, 1 = 90 KV tube

X-Ray Commands

XCN

Performs a cine X-ray acquisition for the number of frames requested at the 'Ticks Per Frame' rate as setup in the X-ray register.
Command syntax: **XCN** *Frames Watchdog*
Frames: 1 to 1024
Watchdog: 0 = disabled, 1 = enabled

XCT

Perform a CT scan for requested distance, speed, and watchdog settings.
Command syntax: **XCT** *Distance Speed Watchdog*
Distance: 1000 to 668563
Speed: 1000 to 65000
Watchdog: 0 = disabled (default), 1 = enabled

XIP

Performs a Panoramic scan for the requested parameters.
Command syntax: **XIP** *Distance Speed PlatformOffset PlatformStartSpeed PlatformStopSpeed RampReduction Watchdog*
Distance: 1000 to 668563
Speed: 1000 to 70000
Platform Offset: 1 to (Distance - 25000)
Platform Start: 1000 to 54000
Platform End: 1000 to 54000
Ramp Reduction: 0 to 250
Watchdog: 0 = disabled, 1 = enabled

XP

Performs an exposed X-ray acquisition for the number of frames requested at the 'Ticks Per Frame' rate as setup in the X-ray register.
Command syntax: **XP** *Frames Watchdog*
Frames: 1 to 1024
Watchdog: 0 = disabled, 1 = enabled

Miscellaneous Commands

DUMP

Performs the following series of commands, with the responses for these commands formatted as a single dump response for convenience:
Door (RD), Exceptions (RE), System Versions (GS), and Usage Monitors (RMS).
Command syntax: **DUMP**

GS

Get System Information
Command syntax: **GS**
Results returned in format: **OK mv:x hw:x sw:x bv:x sn:x**
mv: Machine Version, **hw**: Hardware Version, **sw**: Software Version
bv: Beam Limiter Version, **sn**: Machine Serial Number

Fifth Digit	Machine Type
1	Next-Generation Nano
2	Smart-Scan Nano
8	Next-Generation Platinum
9	Smart-Scan Platinum

CS

Cancel Scan Enable
Command syntax: **CS**
Clears the control box ready scan button when enabled, effectively canceling the current scan. Performed via a separate TCP connection on port 1024; due to the current WSB command blocking on the port where the scan was initiated.

CE

Clear Exception Register
Command syntax: **CE**
Note that the exception register will not reset, if the exceptional condition is persisting regardless of the request to clear the register. This is most commonly observed when one of the motors is not in the home position.

WSB

Enable Scan Button
Command syntax: **WSB**
Enables the wait for ready scan button on the control box; soliciting the user to initiate a scan. Times out in two minutes if the scan button is not pressed.

QUIT

Closes the telnet session and ends the i-CAT Control execution.
Command syntax: **QUIT**

Chapter

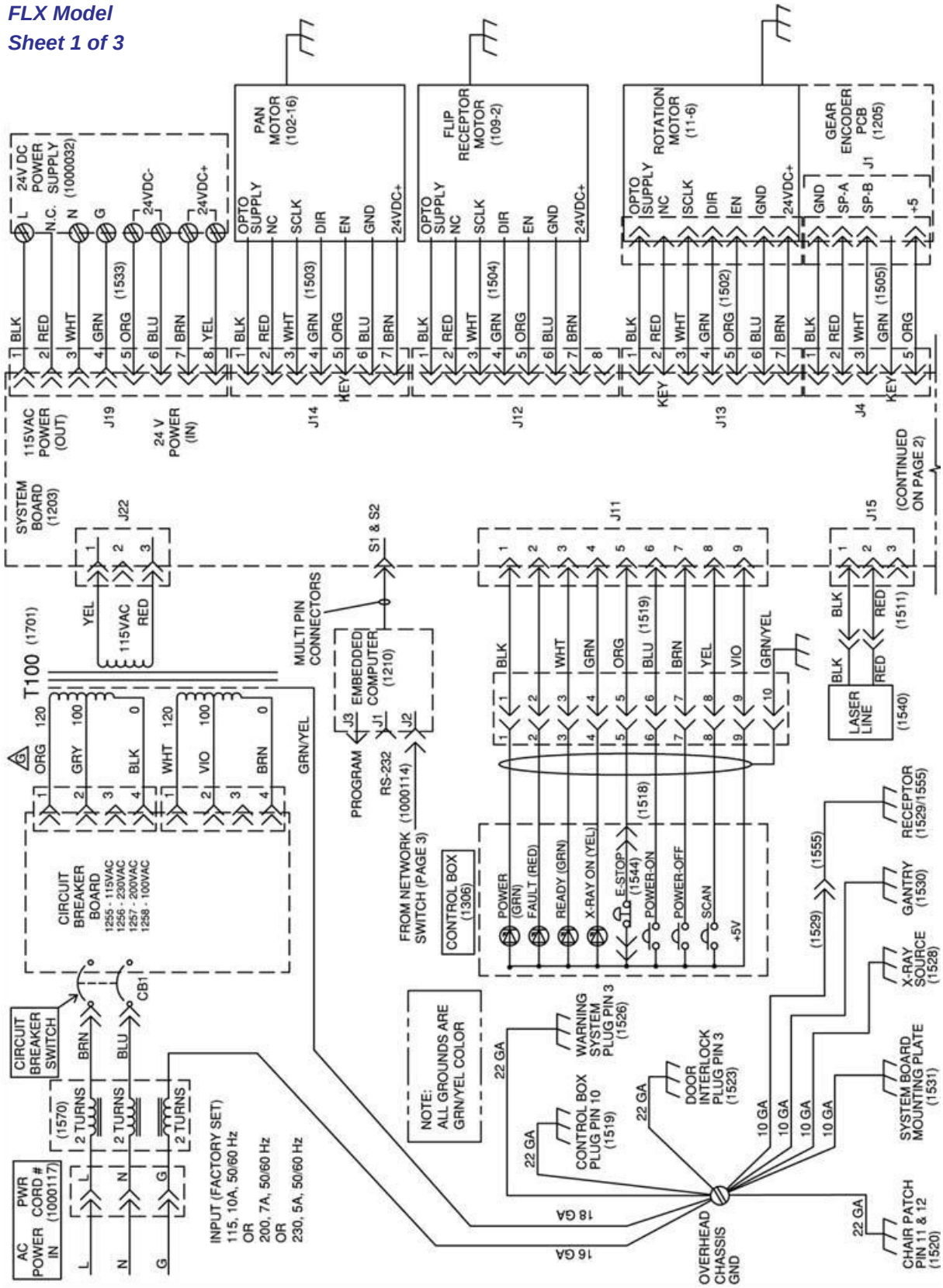
6 System Schematics

This chapter is used to provided system schematics. Ensure power is removed before servicing the scanner.

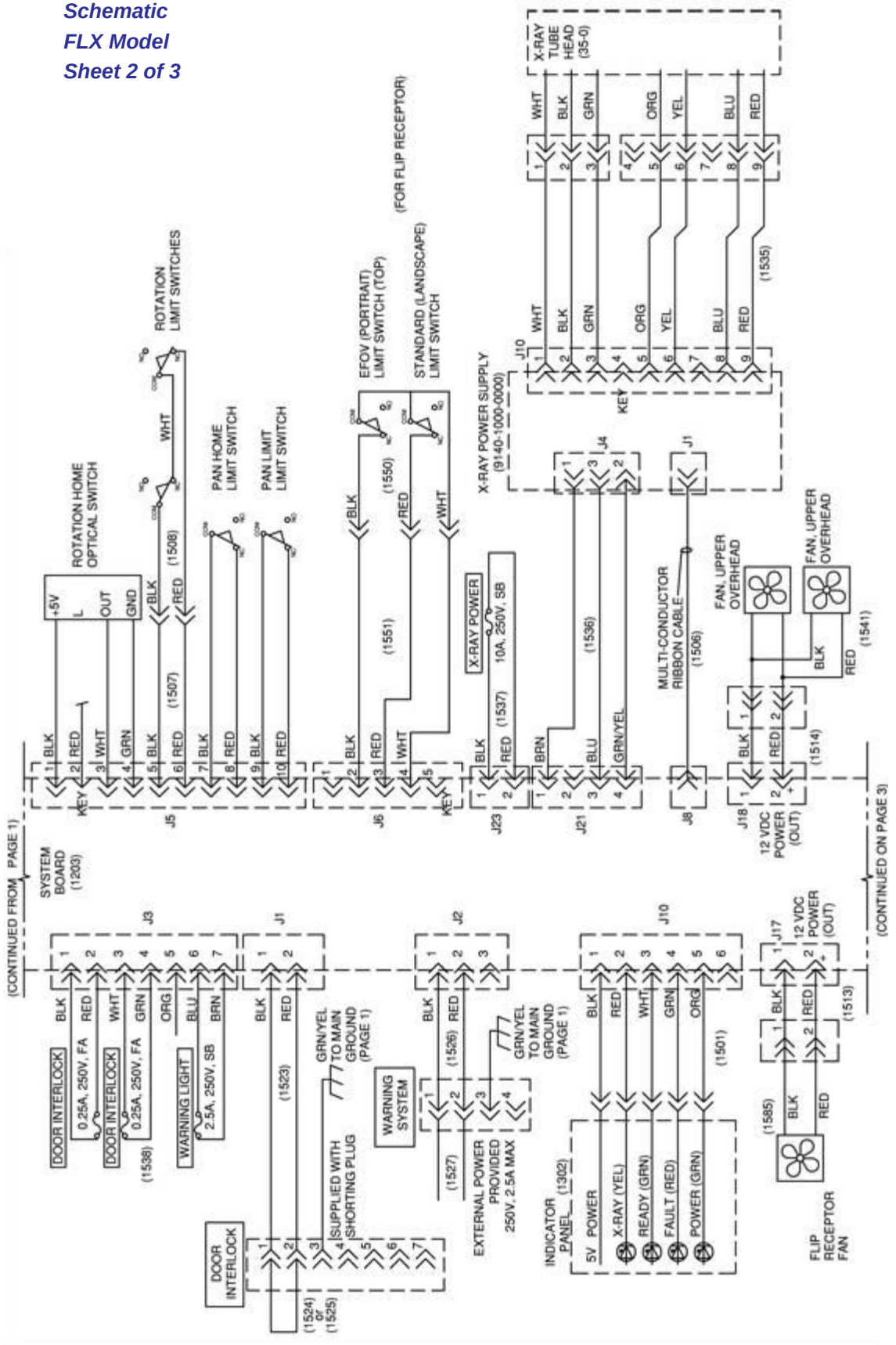
WARNING

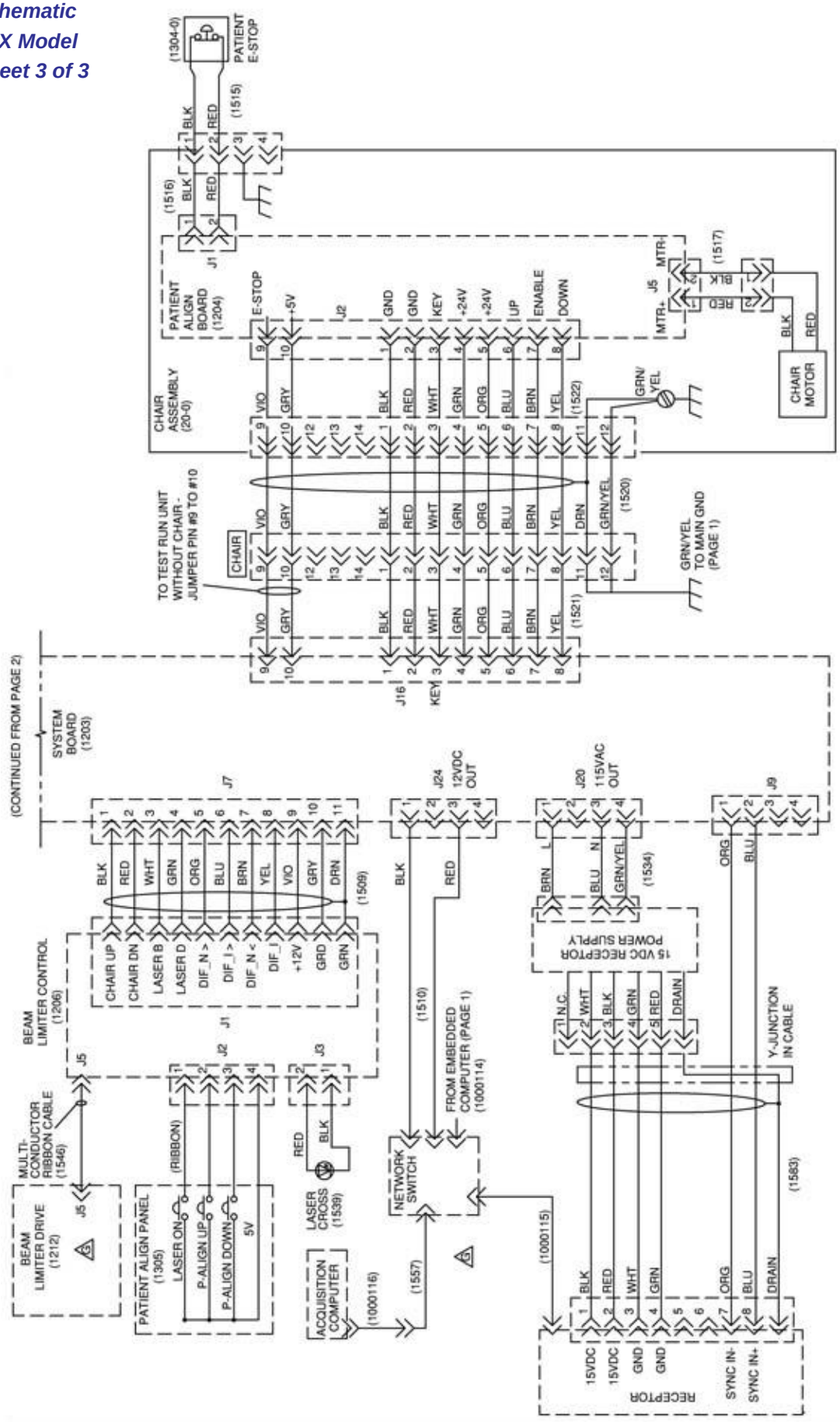
High voltage is present in the scanner. Remove power from scanner before removing covers or cables. To avoid personal injury from electrical shock, do not operate the system with any covers open or cables removed.

Schematic
FLX Model
Sheet 1 of 3



Schematic
FLX Model
Sheet 2 of 3




(CONTINUED FROM PAGE 2)
SYSTEM BOARD (1203)
BEAM LIMITER CONTROL (1206)
MULTI-CONDUCTOR RIBBON CABLE (1546)
BEAM LIMITER DRIVE (1212)
PATIENT ALIGN PANEL (1305)
LASER ON
P-ALIGN UP
P-ALIGN DOWN
5V
(RIBBON)
LASER CROSS (1539)
ACQUISITION COMPUTER
(1000116)
(1557)
NETWORK SWITCH
(1510)
FROM EMBEDDED COMPUTER (PAGE 1) (1000114)
(1000115)
15 VDC RECEPTOR POWER SUPPLY
(1534)
Y-JUNCTION IN CABLE
(1583)
RECEPTOR
15VDC
15VDC
GND
GND
SYNC IN-
SYNC IN+
(1509)
CHAIR UP
CHAIR DN
LASER B
LASER D
DIF_N >
DIF_I >
DIF_N <
DIF_I <
+12V
GRD
GRN
J7
J1
J2
J3
J5
J24 12VDC OUT
J20 115VAC OUT
J9
J16
KEY
TO TEST RUN UNIT WITHOUT CHAIR - JUMPER PIN #9 TO #10
CHAIR
(1521)
(1520)
GRN/YEL TO MAIN GND (PAGE 1)
CHAIR ASSEMBLY (20-0)
PATIENT ALIGN BOARD (1204)
J1
J2
J5
E-STOP
+5V
GND
KEY
+24V
UP
ENABLE
DOWN
(1522)
MTR+
MTR-
(1517)
CHAIR MOTOR
(1516)
(1515)
(1304-0)
PATIENT E-STOP

Imaging Sciences International LLC
1910 North Penn Road
Hatfield, PA 19440 USA
Tel: 1-215-997-5666
Fax: 1-215-997-5665

032-0332 Rev C 2014 February 15